(19) World Intellectual Property Organization

International Bureau



(43) International Publication Date 30 June 2005 (30.06.2005)

PCT

(10) International Publication Number WO 2005/059006 A1

(51) International Patent Classification⁷: C08G 64/14, 64/10

(21) International Application Number:

PCT/EP2004/053331

(22) International Filing Date: 8 December 2004 (08.12.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

03104844.0

19 December 2003 (19.12.2003) El

(71) Applicant (for all designated States except US): CIBA SPECIALTY CHEMICALS HOLDING INC. [CH/CH]; Klybeckstrasse 141, CH-4057 Basel (CH).

- (72) Inventors; and
- (75) Inventors/Applicants (for US only): BRUNNER, Martin [CH/CH]; Rosenstrasse 5, CH-4323 Wallbach (CH). DESAI, Archana, Kishore [IN/IN]; Plot No. 63, B-6, Premier Society, C.S.T. Road, Shiv-shrushti Kurla (East) Maharashtra, Mumbai 400 024 (IN). HINDALEKAR, Shrirang, Bhikaji [IN/IN]; 9/55, B.D.D. Colony, N.M.

Joshi Marg, Lower Parel (East) Maharashtra, Mumbai 400 013 (IN). SAHASRABUDHE, Suhas, Dattatraya [IN/IN]; 8, Om Abhiram Society, Ram Mandir Road, Vile Parle (East) Maharashtra, Mumbai 400 057 (IN). SCHNEIDER, Armin [DE/DE]; Lehenerstrasse 59, 79106 Freiburg (DE). THANKI, Paragkumar, Nathalal [IN/IN]; B-404, Shivbhavani Housing Cooperative, Society, Link Road, Dahisar (East) Maharashtra, Mumbai 400 068 (IN). TINKL, Michael [DE/CH]; Eichenweg 5, CH-5074 Eiken (CH). ZEDDA, Alessandro [IT/CH]; Friedensgasse 6, CH-4056 Basel (CH). GERSTER, Michèle [CH/CH]; Zwinglistrasse 4, CH-4127 Birsfelden (CH). BRAND, Fabien, Jean [FR/FR]; 12, rue des Boulangers, F-68330 Huningue (FR).

- (74) Common Representative: CIBA SPECIALTY CHEM-ICALS HOLDING INC.; Patent Department, Klybeckstrasse 141, CH-4057 Basel (CH).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,

[Continued on next page]

(54) Title: FLUOROCARBON TERMINATED OLIGO- AND POLY-CARBONATES AS SURFACE MODIFIERS

$$R_{1}-X_{1}-O = \begin{bmatrix} O \\ C \\ C \end{bmatrix} - O = \begin{bmatrix} R_{3} \\ R_{0} \end{bmatrix} - R_{0} = \begin{bmatrix} R_{7} \\ R_{3} \end{bmatrix} - O = \begin{bmatrix} O \\ C \\ R_{3} \end{bmatrix} - O - X_{2}-R_{2}$$
 (I)

$$R_0$$
 is $- \stackrel{R_0}{\overset{\circ}{\overset{\circ}{\text{c}}}} - \stackrel{\circ}{\overset{\circ}{\overset{\circ}{\text{c}}}} - \stackrel{\circ}{\overset{\circ}{\overset{\circ}{\text{c}}}} - \stackrel{\circ}{\overset{\circ}{\overset{\circ}{\text{c}}}} - \stackrel{\circ}{\overset{\circ}{\text{c}}} - \stackrel{\circ}{\overset{\circ}{\text{$

$$- \sqrt{\frac{1}{C}} - O - \sqrt{\frac{R_s}{R_s}} - O - \sqrt{\frac{R_s}{R_s}} - O - X_2 - R_2 : \text{or } R_3 \text{ and}$$
 (|||)

(57) Abstract: The instant invention relates to new compounds of the formula (I), wherein R_o is (formula II), R₁ and R₂ are each independently of the other a fluorine containing group, R₃ and R₄ are each independently of the other hydrogen, a fluorine containing group, C₁-C₁₂alkyl, phenyl or (formula III), or R₃ and R₄, together with the carbon atom to which they are bonded, form a C₅-C₈-cycloalkylidene ring that is unsubstituted or substituted by from 1 to 3 C₁-C₄alkyl groups; R₅, R₆, R₇ and R₈ are each independently of the other hydrogen, C₁-C₁₂alkyl or C₃-C₁₂alkenyl, X₁ and X₂ are each independently of the other a direct bond or C₁-C₁₂alkylene, m is 1 to 10 000, and n is 0 to 10 000. These new compounds of the formula (I) are useful as reducers of surface energy for organic materials such as polycarbonates, polyesters or polyketones or their mixtures, blends or alloys. Polymers with such a reduced surface energy possess an "easy to clean", "self-cleaning" "antisoiling", "soil-release" "antigraffiti", "oil resistance", "solvent resistance", "chemical resistance", "self lubricating", "scratch resistance", "low moisture absorption" and "hydrophobic" surface.



WO 2005/059006 A1

MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,

FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.